

REMARKS

Applicant believes that entry of the above amendments and consideration of the following remarks will place this application in condition for allowance. Accordingly, reconsideration of the present application is respectfully requested.

I. The Claims

Claims 1, 5 – 14, 16 – 18, 20 – 31, 33 – 45 and 47 - 70 are presented for examination. Of the pending claims, Claims 1, 25, 28, 33, 51, 54, 60 and 68 are independent claims.

Claims 1, 6, 16, 17, 25, 28, 33, 34, 47, 51, 54, 58, 60 and 68 have been amended herein. Claims 15, 32 and 46 have been cancelled herein.

Independent Claim 1 has been limited to a method for inhibiting the growth of fungi on and in plant tissues by applying a synthetic auxin, together with a metal selected from the group consisting of the alkaline earth and transition metals. Support may be found in the specification, Example 1 and original Claims 1, 7, 15, 19, 20 and 26. Claim 6 has been amended to limit the second auxin to indole-3-acetic acid. Because the limitation of original Claim 15 has been incorporated into amended Claim 1 by this amendment, original Claim 15 has been cancelled. The dependency of Claims 16 and 17 has been amended due to cancellation of Claim 15 from which they depended.

Independent Claim 25 has been limited to a method for inhibiting the growth of fungi on and in plant tissues by applying a synthetic auxin, together with a metal selected from the group consisting of calcium, zinc, copper and manganese, to seeds, seed pieces or tubers for a plant prior to planting or to the roots, foliage, flowers

or fruit of a plant after planting. Support may be found in the specification, Example 1 and original Claims 1, 19, 20 and 32.

Independent Claim 28 has been limited to a method for inhibiting *Fusarium* and *Rhizoctonia* on dry bean plants by applying an auxin, together with a metal selected from the group consisting of calcium, zinc, copper and manganese, to seed beans prior to planting. Support may be found in the specification and original Claims 28 and 32. Because the limitation of original Claim 32 has been incorporated into amended Claim 28 by this amendment, original Claim 32 has been cancelled.

Independent Claim 33 has been limited to a method for inhibiting the infestation of plants by insects by applying an auxin, together with an alkaline earth or transition metal. Support may be found in the specification and original Claims 33 and 46. Claim 34 has been amended to limit the auxin to the natural and synthetic auxins. Because the limitation of original Claim 46 has been incorporated into amended Claim 33 by this amendment, original Claim 46 has been cancelled. The dependency of Claim 47 has been amended due to cancellation of Claim 46 from which it depended.

Independent Claim 51 has been limited to a method for inhibiting the infestation of plants by pests, including insects and their larvae, by applying a synthetic auxin, together with an alkaline earth or transition metal. Support may be found in the specification, Example 1 and original Claims 1, 51 and 58.

Independent Claim 54 has been limited to a method for inhibiting the infestation of onion plants by thrips and their larvae by applying indole-3-butyric acid, together with an alkaline earth or transition metal. Support may be found in the specification and original Claims 7, 54 and 58. Claim 58 has been amended to list

specific alkaline earth and transition metals. Support may be found in the specification, Example 1 and original Claim 32.

Independent Claim 60 has been limited to seeds and seed pieces having dispersed on the surface thereof a natural or synthetic auxin, together with an alkaline earth or transition metal, to inhibit the growth of fungi on the resulting plants. Support may be found in the specification, Example 1 and original Claims 1, 58 and 60.

Independent Claim 68 has been limited to seeds and seed pieces having dispersed on the surface thereof an auxin selected from indole-3-butyric acid, indole-3-acetic acid and mixtures thereof, together with an alkaline earth or transition metal, to inhibit the growth of fungi on the resulting plants. Support may be found in the specification, Example 1 and original Claims 58 and 68.

II. The Invention

Claims 1, 5 to 14, 16 to 18 and 20 to 31 are directed to methods for inhibiting the growth of fungi on or in plant tissues by applying an auxin, together with an alkaline earth or transition metal, to seeds or tubers before planting or to roots, foliage, flowers or fruit of the plants after planting. Claims 1, 5 to 14, 16 to 18 and 20 to 24 specify indole-3-butyric acid, while Claims 25 to 32 merely specify an auxin or synthetic auxin. Claims 28 to 31 more specifically specify that the inhibited fungi is *Fusarium*. It is known from the prior art that application of such compounds may result in uncontrolled growth and death of plants. That knowledge forms the basis of several very effective commercial weed killers. Accordingly, in order to achieve the desired results, it is critical that the specified auxin be applied in an amount effective to inhibit growth of harmful organisms causing the disease, but also in an amount insufficient to

negatively effect growth of the plant tissues. That limitation is found in each of independent Claims 1, 25 and 28.

Claims 33 to 45 and 47 to 59 are directed to methods for inhibiting the infestation of plants by insects and their larvae by applying an auxin, together with an alkaline earth or transition metal, to specific plant parts after planting or to seeds or tubers before planting. Claims 51 to 53 limit the auxin to a synthetic auxin, while Claims 54 to 59 further limit the auxin to indole-3-butyric acid. Again, because such compounds may result in uncontrolled growth and death of plants, in order to achieve the desired results, it is critical that the auxin or plant growth hormone be applied in an amount effective to inhibit infestation by the insects and their larvae, but also in an amount insufficient to negatively effect growth of the plant tissues. That limitation is found in each of the independent Claims 33, 51 and 54.

Finally, Claims 60 to 70 are directed to seeds, seed pieces and tubers that have been treated with an auxin (Claims 60 to 67) or indole-3-butyric acid, either alone or in combination with indole-3-acetic acid (Claims 68 to 70), together with an alkaline earth or transition metal, to produce plants having enhanced resistance to fungi attack. Again, because such compounds may result in uncontrolled growth and death of plants, in order to achieve the desired results, it is critical that the auxin or plant growth hormone be present on the seed or seed piece in an amount effective to inhibit growth of harmful organisms, but also in an amount insufficient to negatively effect growth of the emerging plant tissues. That limitation is found in each of the independent Claims 60 and 68.

III. The Restriction Requirement

The Examiner is thanked for withdrawal of the restriction requirement applied in the prior Office Action.

IV. The Allowable Subject Matter

The Examiner is thanked for the indication that the subject matter of Claims 32 and 58, i.e., application of the specified auxins, together with an alkaline earth or transition metal (Claim 58) or specific such metals, i.e., calcium, zinc, copper or manganese (Claim 32), distinguish over the prior art and would be allowable.

V. The Rejections under 35 U.S.C. § 112

Claims 1, 6 – 18, 20 – 27, 34 – 53, and 60 – 70 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner objected to language in the claims directed to derivatives, metabolites and precursors of the claimed natural and synthetic auxins.

These claims have been amended to remove the language to which the Examiner objected. Accordingly, the rejections based on that language have been traversed. Applicant respectfully requests withdrawal of the present rejections under 35 U.S.C. §112.

VI. The Rejections under 35 U.S.C. § 102

Claims 1, 5 – 7, 18, 20 – 23, 25 – 29, 33 – 39, 48 – 55, 60 – 62, 64, and 66 – 68 stand rejected under 35 U.S.C. §102(b) as being anticipated by Ogbonna, *et al.*, (Effect of Seed-pretreatment with Some Plant Growth Regulators on Germination, Growth and Yield of Cowpea, Nippon Sakumotsu Gakkai Kiji, 1989, 58(4), 641-7) (hereinafter "Ogbonna"). The Examiner asserts that the Ogbonna reference discloses the use of certain plant growth regulators for pre-treating cowpea seeds to improve

germination, dry matter production, flowering and yield. The Examiner concludes that Ogbonna's seed treatment would inherently inhibit growth of fungi and other organisms.

Applicant traverses the rejection over Ogbonna. Initially, it must be stated that Ogbonna neither discloses nor suggested the use of auxins to inhibit the growth of fungi and other organisms or to inhibit infestation by pests, including insects and their larvae. Thus, Ogbonna neither discloses nor suggests Applicant's claimed invention. Further, Ogbonna neither discloses nor suggests application of auxins, together with an alkaline earth or transition metal, as now required by all of Applicant's pending claims. Thus, Ogbonna neither discloses nor suggests Applicant's invention as now claimed.

Claims 1, 6, 7, 13, 25 – 27, 33 – 35, 37 – 39, 43 – 45, 49, 51 – 54, and 57 stand rejected under 35 U.S.C. §102(b) as being anticipated by Prasad, *et al.*, (Physio Therapy of Rice Plant against the root-knot nematode *meloidogyne-graminicola*, Biological Sciences, 1976, vol. 42 no. 6, pp. 295-298) (hereinafter "Prasada"). The Examiner asserts that the Prasad reference discloses methods for applying naphthyl acetic acid (NAA) and indole butyric acid (IBA) to foliage or as a soil drench. The Examiner concludes that Prasad's application would inherently inhibit growth of fungi and other organisms.

Applicant traverses the rejection over Prasad. Initially, it must be stated that Prasad neither discloses nor suggested the use of auxins to inhibit the growth of fungi and other organisms or to inhibit infestation by pests, including insects and their larvae, as specified by Applicant. Thus, Prasad neither discloses nor suggests Applicant's claimed invention. Further, Prasad neither discloses nor suggests that application of auxins, together with an alkaline earth or transition metal, as now required

by all of Applicant's pending claims. Thus, Prasad neither discloses nor suggests Applicant's invention as now claimed.

Applicant respectfully requests withdrawal of the present rejections under 35 U.S.C. §102.

VII. The Rejection under 35 U.S.C. § 103

Claims 8 – 10, 14, 30, 31, 40 – 42, 56, 59, and 63 stand rejected under 35 U.S.C. §103(a) as being obvious and, thus, unpatentable over Ogbonna as applied to Claims 1, 5 – 7, 18, 20 – 23, 25 – 29, 33 – 39, 48 – 55, 60 – 62, 64, and 66 – 66 above.

Claims 14, 22, 23, 40 – 42 and 59 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Prasad as applied to Claims 1, 6, 7, 13, 25 – 27, 33 – 35, 37 – 39, 43 – 45, 48, 49, 51 – 54 and 57 above.

As discussed in the previous section, neither Ogboona nor Prasad discloses or suggests the application of an auxin, together with an alkaline earth or transition metal, as now required by all of Applicant's claims to inhibit the growth of various fungi and pests on treated plants. Because neither reference discloses this claimed feature, the combination of references is similarly deficient.

Thus, Applicant respectfully requests withdrawal of the present rejections under 35 U.S.C. §103.

VIII. The Conclusion

None of the prior art cited by the Examiner or known to Applicant discloses or suggests the invention as now claimed. None of that prior art discloses or suggests (a) methods for protecting plant tissue from attack by fungi or insects/larvae by applying an effective amount of an auxin (preferably indole-3-butyric acid), together with an alkaline earth or transition metal, to the seeds of the plant before planting or to the

roots, foliage, flowers or fruit of the plant after planting or (b) seeds, seed pieces or tubers treated with such an auxin, together with an alkaline earth or transition metal, to provide the emerging plant with protection against attack by such pathogenic flora and fauna.

Having already overcome three rejections on the merits, Applicant believes that examination of the claims of this application should be concluded expeditiously and that a Notice of Allowance should promptly issue. Applicant, accordingly, requests that all of the claims in the captioned application, i.e., Claims 1, 5 to 14, 16 to 18, 20 to 31, 33 to 45 and 47 to 70, be promptly passed to issue.

No additional claims fees are required with this Response. However, the Commissioner is authorized to charge any fee which may be required with this Response to Deposit Account No. 19-2112. This authorization is made in duplicate in the accompanying letter.

If the Examiner believes that a telephone conference would expedite allowance, he is urged to contact the undersigned at (713) 227-8008.

Respectfully submitted,

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